ARRIS

Touchstone® WBM750 Wideband Cable Modem User's Guide

Get ready to experience the Internet's express lane! Whether you're checking out streaming media, downloading new software, or checking your email, the Touchstone WBM750 Wideband Cable Modem brings it all to you faster and more reliably. The high-speed, always-on connection won't keep you waiting.

The Touchstone Wideband Cable Modem provides an Ethernet connection for use with either a single computer or home/office Local Area Network (LAN). Some Wideband Cable Modems also provide a USB 2.0 connection. You can connect two separate computers at the same time using both of these connections.

Installation is simple and your cable company will provide assistance to you for any special requirements.

The links below provide more detailed instructions.

Safety Requirements

Getting Started

Installing and Connecting Your Wideband Cable Modem

Installing USB Drivers on Your PC

Configuring Your Ethernet Connection

Using the Wideband Cable Modem

Troubleshooting

Glossary

Export Regulations

This product may not be exported outside the U.S. and Canada without U.S. Department of Commerce, Bureau of Export Administration authorization. Any export or re-export by the purchaser, directly or indirectly, in contravention of U.S. Export Administration Regulation is prohibited.

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Protected under one or more of the following U.S. patents: 7,031,453; 7,100,011. Other patents pending.

ARSVD01158
Release 7 Standard 1.4 November 2008

Safety Requirements

ARRIS Wideband Cable Modems comply with the applicable requirements for performance, construction, labeling, and information when used as outlined below:

CAUTION

Risk of shock

Mains voltages inside this unit. No user serviceable parts inside. Refer service to qualified personnel only!

CAUTION

Risk of damage

To prevent overheating your Wideband Cable Modem, do not block the ventilation holes on the unit.

Do not locate the equipment within 6 feet (1.9m) of a flame or ignition source (e.g. heat registers, space heaters, fireplaces, etc.).

- Do not use product near water (i.e. wet basement, bathtub, sink or near a swimming pool, etc.), to avoid risk of electrocution.
- Avoid using and/or connecting the equipment during an electrical storm, to avoid risk of electrocution.
- Use only power supply and power cord included with the equipment.
- Equipment should be installed near the power outlet and should be easily accessible.
- The shield of the coaxial cable must be connected to earth (grounded) at the entrance to the building in accordance with applicable national electrical installation codes. In the U.S., this is required by NFPA 70 (National Electrical Code) Article 820. In the European Union and in certain other countries, CATV installation equipotential bonding requirements are specified in IEC 60728-11, *Cable networks for television signals, sound signals and interactive services, Part 11: Safety*. This equipment is intended to be installed in accordance with the requirements of IEC 60728-11 for safe operation.

If the equipment is to be installed in an area serviced by an IT power line network, as is found in many areas of Norway, special attention should be given that the installation is in accordance with IEC 60728-11, in particular Annex B and Figure B.4.

- In areas of high surge events or poor grounding situations and areas prone to lightning strikes, additional surge protection may be required (i.e. PF11VNT3 from American Power Conversion) on the AC, RF, and Ethernet lines.
- When the Wideband Cable Modem is connected to a local computer through USB or Ethernet cables, the computer must be properly grounded to the building/residence AC ground network. All plug-in cards within the computer must be properly installed and grounded to the computer frame per the manufacturer's specifications.
- Do not use spray cleaners or aerosols on the Wideband Cable Modem.
- Clean the Wideband Cable Modem only with a dry cloth.

Radio Frequency Emissions and Immunity

United States Compliance

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

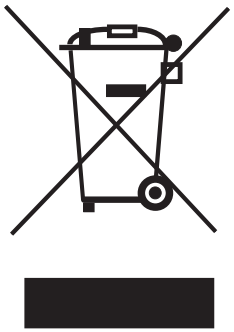
Product Safety

UL listed per UL60950.

European Compliance

This product complies with the provisions of the Electromagnetic Compatibility (EMC) Directive (89/336/EEC), the Amending Directive (92/31/EEC), the Low Voltage Directive (73/23/EEC), and the CE Marking Directive (93/68/EEC). As such, this product bears the CE marking in accordance with the above applicable Directive(s).

A copy of the Declaration of Conformity may be obtained from: ARRIS International, Inc., 3871 Lakefield Drive, Suite 300, Suwanee, GA 30024.



As indicated by this symbol, disposal of this product is governed by Directive 2002/96/EC of the European Parliament and of the Council on waste electrical and electronic equipment (WEEE). WEEE could potentially prove harmful to the environment; as such, upon disposal of the Wideband Cable Modem the Directive requires that this product must not be disposed as unsorted municipal waste, but rather collected separately and disposed of in accordance with local WEEE ordinances.

This product complies with directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances (RoHS) in electrical and electronic equipment.

ARRIS
RoHS Compliant
GREEN

Getting Started

About Your New Wideband Cable Modem

The Touchstone WBM750 Wideband Cable Modem is DOCSIS® or Euro-DOCSIS™ compliant with the following features:

- Speed: much faster than dialup or ISDN service
- Convenience: supports USB 2.0 (if equipped) and Ethernet; both can be used simultaneously
- Flexibility: provides high speed DOCSIS 2.0 data service or wideband DOCSIS 3.0 data service
- Compatibility: supports tiered data services (if offered by your cable company)

What's in the Box?

Make sure you have the following items before proceeding. Call your cable company for assistance if anything is missing.

- Wideband Cable Modem
- Power Cord
- Quick Installation Guide
- USB Cable (if the Wideband Cable Modem has a USB port)
- Ethernet Cable
- CD-ROM (if the Wideband Cable Modem has a USB port)
- Screws for Wall Mounting the Unit
- End User License Agreement

What's on the CD?

The CD provides the following items:

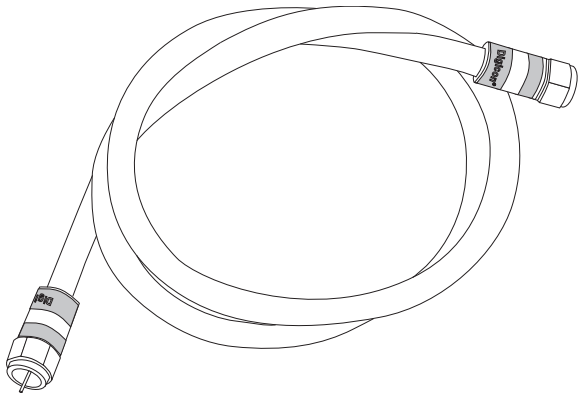
- Quick Install Guide
- User's Guide
- USB Drivers (Windows 2000/XP/Vista)
- Remove USB Driver Utility

Items You Need

If you are installing the Wideband Cable Modem yourself, make sure you have the following items on hand before continuing:

- Wideband Cable Modem package: see What's in the Box? for a list of items in the package.
- Coaxial cable (coax): as shown in the image to the left, this is a thin cable with a connector on each end. It is the same kind of wire used to connect to your television for cable TV. You can buy coax from any electronics retailer and many discount stores; make sure it has connectors on both ends. There are two types of connectors, slip-on and screw-on; the screw-on connectors are best for use with your Wideband Cable Modem. The coax should be long enough to reach from your Wideband Cable Modem to the nearest cable outlet.
- Splitter (optional): provides an extra cable connection by splitting a single outlet into two. You may need a splitter if you have a TV already connected to the cable outlet that you want to use. You can buy a splitter from any electronics retailer and most discount stores; you may also need a short piece of coax cable (with connectors); use it to connect the splitter to the cable outlet and then connect the Wideband Cable Modem and TV to the splitter.

  Note: A splitter effectively cuts the signal in half and sends each half to its two outputs. Using several splitters in a line may deteriorate the quality of your television and/or internet connection.
- Information packet: your cable company should furnish you with a packet containing information about your service and how to set it up. Read this information carefully and contact your cable company if you have any questions.



Coax Cable

System Requirements

The Touchstone Wideband Cable Modem operates with most computers. The following describes requirements for each operating system; see the documentation for your system for details on enabling and configuring networking.

To use the Wideband Cable Modem, you need DOCSIS 3.0 high-speed Internet service from your cable company.

Recommended Hardware

The following hardware configuration is the minimum recommended. Computers not meeting this configuration can still work with the WBM750, but may not be able to make maximum use of WBM750 throughput.

CPU: P4, 3GHz or faster

RAM: 1GB or greater

Hard drive: 7200 RPM or faster

Ethernet: Gig-E (1000BaseT)

Windows

Ethernet connection: Windows 98, Windows 98 SE (Second Edition), Windows ME, Windows 2000, Windows XP, or Windows Vista

USB connection (if equipped): Windows 2000, Windows XP, or Windows Vista

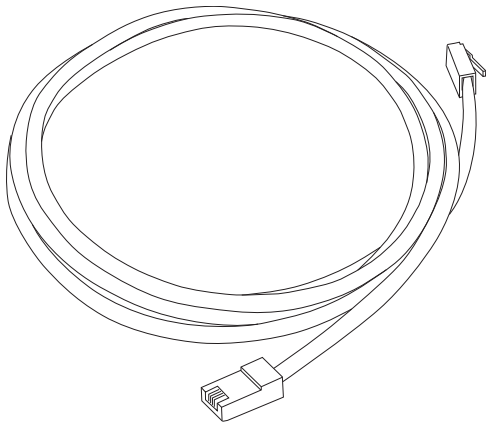
Note: For best results, Windows XP should be configured with a TCP receive window size of 256KB (the XP default is 64 KB). The TCP Optimizer program, available from speedguide.net, can be used to make this change.

MacOS

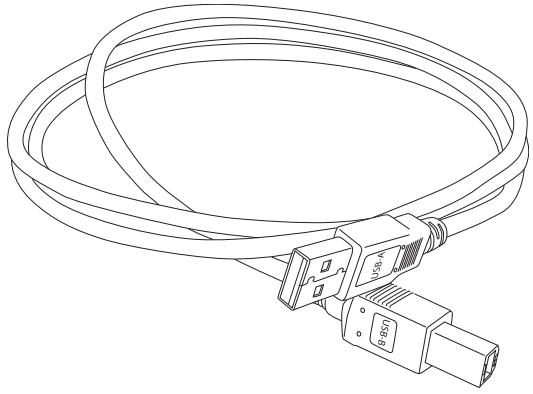
Ethernet connection only: MacOS X

Linux/other Unix

Ethernet connection only: Hardware drivers, TCP/IP, and DHCP must be enabled in the kernel



Ethernet Cable



USB Cable

Ethernet or USB?

There are two ways to connect your computer (or other equipment) to the Wideband Cable Modem. The following will help you decide which is best for you:

Ethernet

Ethernet is a standard method of connecting two or more devices into a Local Area Network (LAN). Use the Ethernet connection if your computer has built-in Ethernet hardware, does not use Windows, or you want to share the Wideband Cable Modem connection with several computers.

Note: To connect two or more computers to the Ethernet port, you will need a hub or broadband router (available at computer retailers).

The Wideband Cable Modem package comes with a 6-foot (1.9m) Ethernet cable (the connectors look like wide telephone connectors); you can purchase a longer cable if necessary at a computer retailer. If you are connecting the Wideband Cable Modem directly to a computer, or to an Ethernet hub or broadband router with a cross-over switch, ask for Category 5 (CAT5) straight-through cable. If you are connecting the Wideband Cable Modem to an Ethernet hub or broadband router without a crossover switch, ask for a Category 5 crossover cable.

USB

USB (Universal Serial Bus) is meant for connecting a variety of accessories, such as keyboards, mice, printers, and communications devices (including Wideband Cable Modems) to a single computer. Use the USB connection if you have only one computer, and the computer is using a Windows operating system (Windows 2000 or later), and has no built-in Ethernet hardware. Wideband Cable Modems with USB ports include a 5-foot (1.6m) USB cable.

Both

If you have two or more computers, you can connect one computer to the Wideband Cable Modem's USB port and one or more other computers to the Ethernet port. To connect two or more computers to the Ethernet port, you will need a hub or broadband router (available at computer retailers).

For more information about connecting two or more computers, contact your cable service provider.

What About Security?

Having a high-speed, always-on connection to the Internet requires a certain amount of responsibility to other Internet users—including the need to maintain a reasonably secure system. While no system is 100% secure, you can use the following tips to enhance your system's security:

- Keep your operating system updated with the latest security patches. Run the system update utility at least weekly.
- Keep your email program updated with the latest security patches. In addition, avoid opening email containing attachments, or opening files sent through chat rooms, whenever possible.
- Install a virus checker and keep it updated.
- Avoid providing web or file-sharing services over your Wideband Cable Modem. Besides certain vulnerability problems, most cable companies prohibit running servers on consumer-level accounts and may suspend your account for violating your terms of service.
- Use the cable company's mail servers for sending email.
- Avoid using proxy software unless you are certain that it is not open for abuse by other Internet users (some are shipped open by default). Criminals can take advantage of open proxies to hide their identity when breaking into other computers or sending spam. If you have an open proxy, your cable company may suspend your account to protect the rest of the network.
- If you connect your Wideband Cable Modem to a wireless LAN, make sure you enable security and encryption on the wireless hub (for the same reasons that you should run only secured proxies). Consult the documentation and technical support of the wireless equipment provider for help.

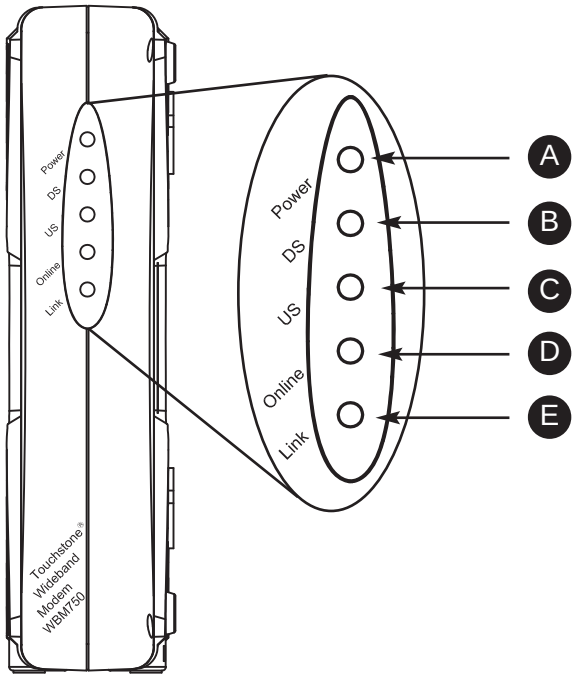
Installing and Connecting Your Wideband Cable Modem

Before you start, make sure that:

- You have contacted your cable company and verified that they provide data service using standard DOCSIS 3.0 technology.
- You have all the Items You Need.
- Cable and power outlets are available near the computer. If a cable outlet is not conveniently located, your cable company can install a new one.
- For best performance, use high-quality RG-6 type coax cable and minimize or eliminate splitters between the cable jack and the Wideband Cable Modem.

Note: To prevent overheating your Wideband Cable Modem, do not block the ventilation holes on the unit.

If you have ordered service, your cable company should configure the Wideband Cable Modem automatically. You need only follow the instructions in this section to install and connect the Wideband Cable Modem.



Front Panel

The front of the Wideband Cable Modem provides the following indicators.

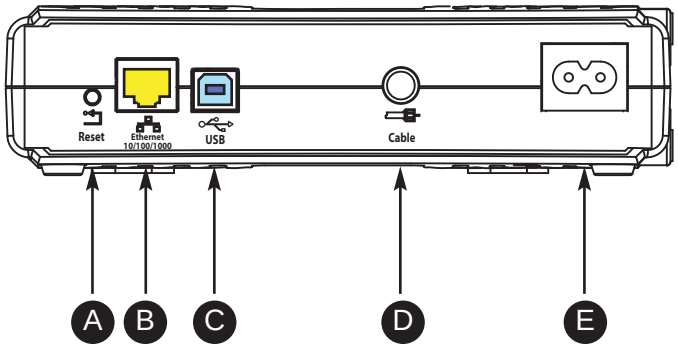
A Power: indicates whether AC power is available to the unit

B DS: indicates downstream connectivity

C US: indicates upstream connectivity

D Online: indicates internet data transmission status

E Link: indicates Ethernet (all models) or USB (if equipped) connectivity between the Wideband Cable Modem and computer



Rear Panel

The rear of the Wideband Cable Modem has the following connectors and controls:

A Reset button: resets the Wideband Cable Modem as if you power cycled the unit. Use a pointed non-metallic object to press this button.

B Ethernet connector (yellow): for use with a computer or home network LAN connection.

C USB connector (if equipped) (blue): for use with a computer USB connection.

D Cable: connector for the coax cable.

E Power: connector for the power cord.

Mounting the Wideband Cable Modem

You can either mount the Wideband Cable Modem on a wall or place it on a desktop. For wall-mount applications, you can mount the Wideband Cable Modem with the indicators facing upward (vertical) or to the side (horizontal).

Tools and Materials

For wall-mounted installations, make sure you have the following tools and materials before proceeding:

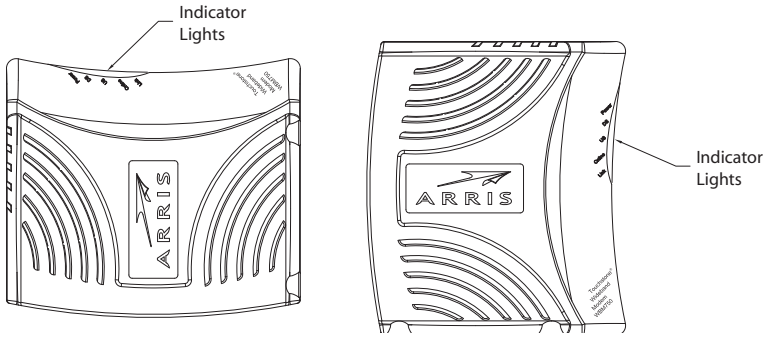
- screwdriver (flat-blade or Phillips, depending on what kind of screws you use)
- wall-mount template (included)
- transparent tape (for temporarily securing the mounting template to the wall)
- for mounting on drywall: Two 1/4” (6mm) drywall anchors and a drill with 1/4” (6mm) bit (not included)
- for mounting on plywood or studs: two #6 x 1.5” (38.1 mm) self tapping screws; the head diameter should be approximately 6mm (0.25inches)

Location

Always position the Wideband Cable Modem:

- within 1.3m (4 feet) of an AC outlet. The power cord must reach the outlet without stretching and without adding extension cords.
- with the indicator lights facing up or to the right as shown
- near a cable outlet (to avoid long cable runs).
- where the ventilation holes on the unit will not be blocked

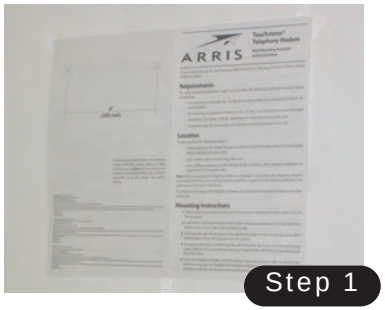
Note: For best performance, use high-quality RG-6 type coax cable and minimize or eliminate splitters between the cable jack and the Wideband Cable Modem.

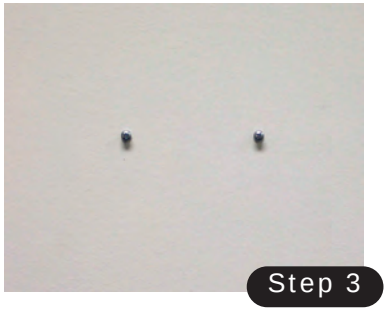


Instructions

Wall-mounting instructions

Note: When mounting the Wideband Cable Modem on drywall, try to position the modem so at least one of the screws are fastened to a stud. This may prevent the Wideband Cable Modem from pulling out of the wall in the future.To prevent overheating, do not block the ventilation holes on the sides of the unit.





1 Position the mounting template on the surface where you intend to mount the Wideband Cable Modem and secure in place with transparent tape.

2 Drill holes through the template in the specified locations for the mounting screws. After drilling holes, remove the template from the surface.

3 If using drywall anchors, set them into the wall. Then, drive the screws into the wall leaving a gap of about 1/8” (3 mm) between the screw head and the wall. If not using anchors, just drive the screws.

4 Orient the Wideband Cable Modem with the indicator lights facing up or right, as desired. Slip both mounting slots (in the back of the Wideband Cable Modem) over the screws, then slide the case down until the narrow end of the keyhole slot contacts the screw shaft.

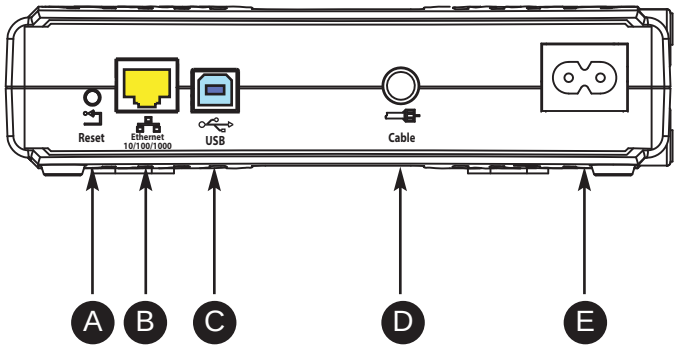
5 Proceed to Connecting the Wideband Cable Modem.

Desktop mounting instructions

1 Position the Wideband Cable Modem so that:

- air flows freely around it
- the back faces the nearest wall
- it will not fall to the floor if bumped or moved

2 Proceed to Connecting the Wideband Cable Modem.



Connecting the Wideband Cable Modem

1 Connect one end of the coax cable to the cable outlet or splitter, and the other end to the Wideband Cable Modem's Cable connector (C). Tighten the connections by hand, then tighten an additional 1/8 turn with a wrench.

Note: For best performance, use high-quality RG-6 type coax cable and minimize or eliminate splitters between the cable jack and the Wideband Cable Modem.

2 Insert the plug from the power cord into the Power connector (D) and insert the power cord into a convenient AC outlet.

The Power light on the front of the Wideband Cable Modem should light up, then start flashing. See Troubleshooting if the Power light does not turn on.

3 After connecting the coax cable and power, proceed as needed:

- Making Ethernet Connections OR
- Making USB Connections (if equipped)

Note: Do not connect the same computer to both the Ethernet and USB ports.

Making Ethernet Connections

4 Connect one end of the yellow Ethernet cable to the yellow port on the back of the Wideband Cable Modem labeled "Ethernet," (B) and the other end to the Ethernet port on a computer, hub, or broadband router. Recommended connections are 100Base-T or 1000 Base-T to achieve best performance.

Note: If you are connecting to a computer, use the Ethernet cable included in the Wideband Cable Modem package unless it is too short. Longer Ethernet cables are available from any computer retailer. To avoid reduced data throughput performance, do not connect the Wideband Cable Modem to a 10Mbps device.

Making USB Connections

5 (Wideband Cable Modems with USB ports only) Connect one end of the blue USB cable to the USB port on the computer, and the other end to the USB port on the back of the Wideband Cable Modem (C).

Your computer should detect the Wideband Cable Modem and begin installing the drivers. See Installing USB Drivers on Your PC for driver installation details.

Installing USB Drivers on Your PC

When you plug the Wideband Cable Modem into the PC's USB port, Windows automatically detects the hardware and begins installing the USB drivers.

This procedure does not explain how to provision the Wideband Cable Modem or otherwise initiate actual service.

The latest USB drivers and documentation are available on line at http://www.arrisi.com/support/usb/index.asp

Note: Not all Wideband Cable Modems are equipped with a USB port.

Requirements

Make sure you have the following before attempting to install the USB drivers:

- PC with:
  - CD-ROM drive
  - at least one free USB port
  - one of: Windows 2000, Windows XP, or Windows Vista (Windows 95, Windows 98, and Windows NT are not supported)
  - ARRIS USB Driver CD
- USB A/B Cable of appropriate length (a cable is included in your Wideband Cable Modem package)
- (for installations not using DHCP) IP address, subnet, gateway, and DNS information

Installation Instructions

Select the link for your operating system to see the installation instructions.

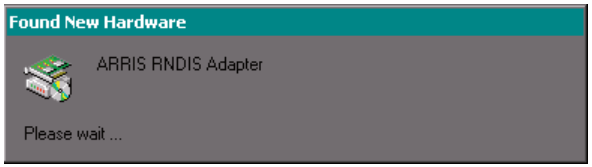
- Installing USB Drivers on Windows 2000
- Installing USB Drivers on Windows XP
- Installing USB Drivers on Windows Vista

Installing USB Drivers on Windows 2000

Follow these steps to install USB drivers on Windows 2000.

1. Make sure the Wideband Cable Modem is on (the Power light should be on). If not, connect the AC adapter as described in Connecting the Wideband Cable Modem.
2. Insert the CD that came with the Wideband Cable Modem package into the CD-ROM drive.
3. Plug the appropriate end of the USB cable into the Wideband Cable Modem and the other end into the computer's USB port.

   The following window appears, indicating that the PC has detected a new USB device:

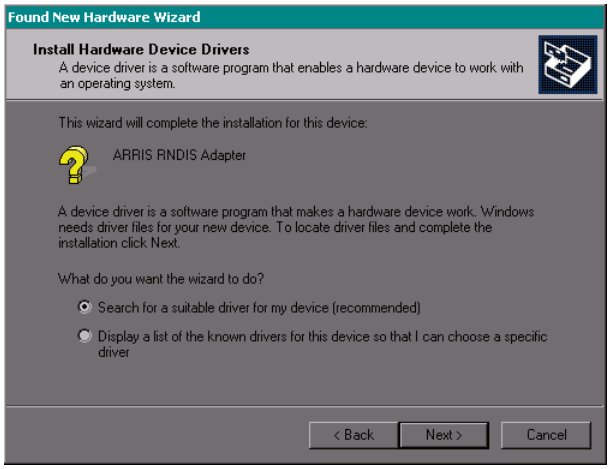


4. Wait for the system to start the installation wizard and display the following window (there may be a short delay):

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
This wizard helps you install a device driver for a hardware device.
To continue, click Next.
< Back
Next >
Cancel

5 Click the Next button.

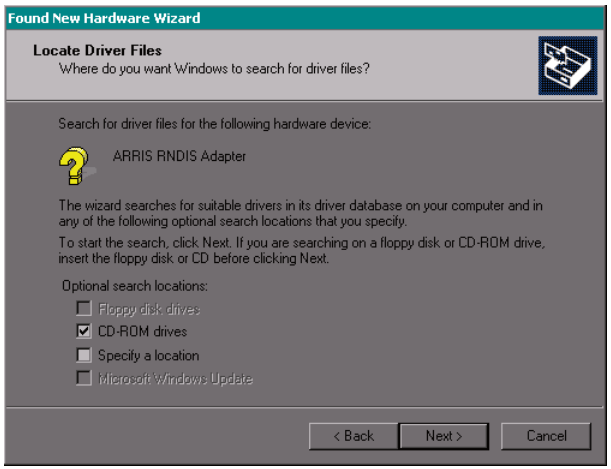
The wizard prompts you for the location of the drivers.


Found New Hardware Wizard
Install Hardware Device Drivers
A device driver is a software program that enables a hardware device to work with an operating system.
This wizard will complete the installation for this device:
ARRIS RNDIS Adapter
A device driver is a software program that makes a hardware device work. Windows needs driver files for your new device. To locate driver files and complete the installation click Next.
What do you want the wizard to do?
Search for a suitable driver for my device (recommended)
Display a list of the known drivers for this device so that I can choose a specific driver
< Back
Next >
Cancel

Note: The dialog indicates that the wizard is looking for the ARRIS RNDIS (Remote Network Device Interface Specification) driver for the Wideband Cable Modem.

6 Select “Search for a suitable driver for my device”, unless you want to use the second option to choose a specific driver, then click the Next button.

The wizard displays a list of search options.


Found New Hardware Wizard
Locate Driver Files
Where do you want Windows to search for driver files?
Search for driver files for the following hardware device:
ARRIS RNDIS Adapter
The wizard searches for suitable drivers in its driver database on your computer and in any of the following optional search locations that you specify.
To start the search, click Next. If you are searching on a floppy disk or CD-ROM drive, insert the floppy disk or CD before clicking Next.
Optional search locations:
Floppy disk drives
CD-ROM drives
Specify a location
Microsoft Windows Update
< Back
Next >
Cancel

7 Make sure the CD-ROM option is selected (checked), then click the Next button.

The wizard searches the specified locations, then displays the location and name of the appropriate driver.

Found New Hardware Wizard
Driver Files Search Results
The wizard has finished searching for driver files for your hardware device.
The wizard found a driver for the following device:
ARRIS RNDIS Adapter
Windows found a driver for this device. To install the driver Windows found, click Next.
d:\attmusb.inf
< Back
Next >
Cancel

Note: If the wizard can not find the CD drive, and the CD is inserted properly, follow these steps:

a. On the Windows desktop, open “My Computer” and note the letter of the Compact Disc (or CD-ROM) drive (on most systems, the CD drive is at D: or E:)

b. Return to the Found New Hardware Wizard, and click the Back button.

The wizard displays the previous screen, shown in step 6.

c. Select “Specify a Location,” then choose the drive letter that corresponds to the CD drive from the menu.

d. Click the Next button.

You should now see the screen shown above. If not, contact your cable company for help.

8 Click the Next button.

The wizard installs the drivers, then displays a window indicating that the installation is complete.

Found New Hardware Wizard
Completing the Found New Hardware Wizard
ARRIS TOUCHSTONE DEVICE
Windows has finished installing the software for this device.
To close this wizard, click Finish.
< Back
Finish
Cancel

9 Click the Finish button.

Installing USB Drivers on Windows XP

Follow these steps to install USB drivers on Windows XP.

1. Make sure the Wideband Cable Modem is on (the Power light should be on). If not, connect the AC adapter as described in Connecting the Wideband Cable Modem.
2. Insert the CD that came with the Wideband Cable Modem package into the CD-ROM drive.
3. Plug the appropriate end of the USB cable into the Wideband Cable Modem and the other end into the computer's USB port.

   The following window appears, indicating that the PC has detected a new USB device:

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
This wizard helps you install software for:
ARRIS RNDIS Adapter
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

4 Click the Next button.

The wizard begins searching for and installing the drivers, then displays a window indicating that the installation is complete.

Found New Hardware Wizard
Completing the Found New Hardware Wizard
The wizard has finished installing the software for:
ARRIS TOUCHSTONE DEVICE
The hardware you installed will not work until you restart your computer.
Click Finish to close the wizard.
< Back
Finish
Cancel

5 Click the Finish button.

Installing USB Drivers on Windows Vista

Follow these steps to install USB drivers on Windows Vista.

Installing Touchstone USB Drivers on Vista in 32-bit Mode

When running Vista in 32-bit mode, simply connect your PC to the Touchstone Wideband Cable Modem or Cable Modem. The Vista Hardware Installation Wizard finds the correct 32-bit USB driver and installs it for you.

Installing Touchstone USB Drivers on Vista in 64-bit Mode

When running Vista in 64-bit mode, you must install an updated Vista USB 1.1 driver. Follow these steps to obtain and install the driver.

1. Download the zipped Vista USB driver from the ARRIS website at the following link:

   http://www.arrisi.com/support/usb/index.asp

2. Unzip the files to a directory that can be referenced later (Step 8) during the installation of the USB driver.

3. Connect the USB cable between the Touchstone Cable Modem or Wideband Cable Modem and personal computer running Vista.

4. When the Found New Hardware screen is presented, select the “Locate and install driver software (recommended)” option.

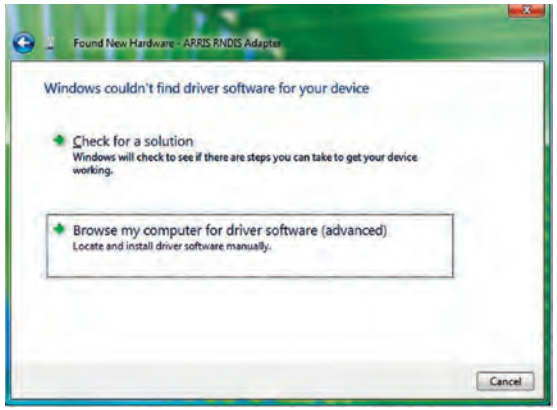
Found New Hardware
Windows needs to install driver software for your ARRIS RNDIS Adapter
Locate and install driver software (recommended)
Windows will guide you through the process of installing driver software for your device.
Ask me again later
Windows will ask again the next time you plug in your device or log on.
Don't show this message again for this device
Your device will not function until you install driver software.
Cancel

5 When you see a window with the heading “Windows needs your permission to continue,” click Continue to proceed.

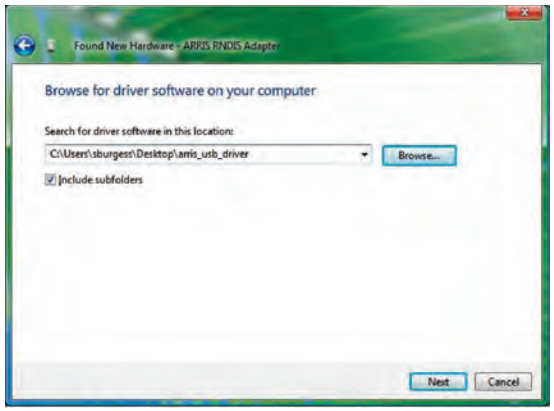
6 Vista tries to locate the new USB driver, and displays a “Installing device driver software” at the bottom right of the screen. Vista will not find the driver, and displays the following window. At the prompt, select I don’t have the disc. Show me other options.

Found New Hardware - ARRIS RNDIS Adapter
Insert the disc that came with your ARRIS RNDIS Adapter
If you have the disc that came with your device, insert it now. Windows will automatically search the disc for driver software.
I don't have the disc. Show me other options.
Next
Cancel

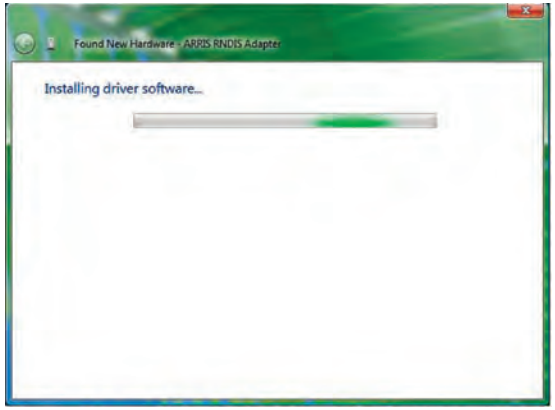
7 Select Browse my computer for driver software (advanced).


Found New Hardware - ARRIS RNDIS Adapter
Windows couldn't find driver software for your device
Check for a solution
Windows will check to see if there are steps you can take to get your device working.
Browse my computer for driver software (advanced)
Locate and install driver software manually.
Cancel

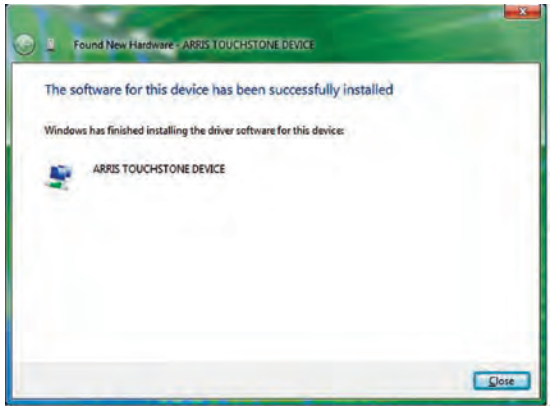
8 Browse to the directory that you set up in step 2. Select Next.



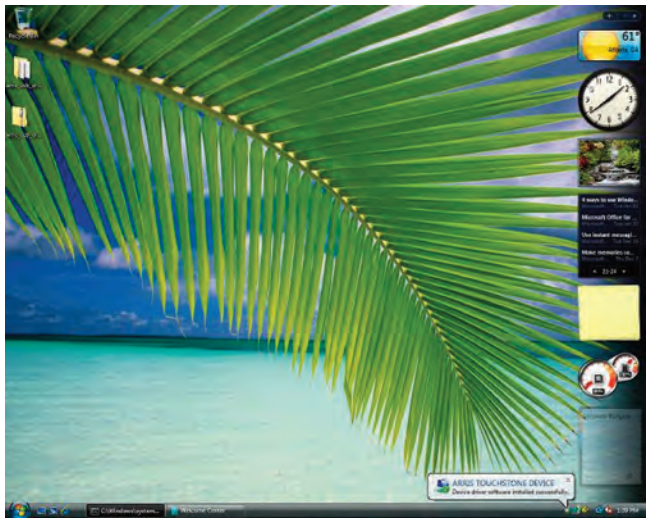
9 Once Vista finds the driver software in the directory specified in step 8, installation is in progress as shown below.



10 The Found New Hardware wizard should display the following screen when the USB driver has been successfully installed. Select Close.


Found New Hardware - ARRIS TOUCHSTONE DEVICE
The software for this device has been successfully installed
Windows has finished installing the driver software for this device:
ARRIS TOUCHSTONE DEVICE
Close

11 Once the installation is completed successfully, Vista displays an icon with the message “ARRIS TOUCHSTONE DEVICE, Device driver software installed successfully” at the bottom right corner of the screen.



Removing USB Drivers

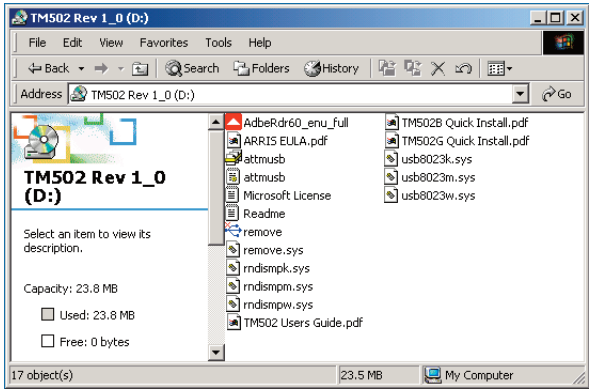
You use a Remove utility to remove ARRIS USB drivers. The 64-bit version of Vista uses a special utility; other versions of Windows use a single utility.

Removing USB Drivers (all but 64-bit Vista)

If you connect the Wideband Cable Modem USB to your computer before inserting the ARRIS driver installation CD, Windows may install a “composite” USB driver that does not properly support the Wideband Cable Modem. To correct this problem, you must first remove the composite driver using the Remove utility on the ARRIS driver installation CD. Follow these steps to use the Remove utility:

1 Insert the ARRIS driver installation CD.

2 Navigate to the CD drive:

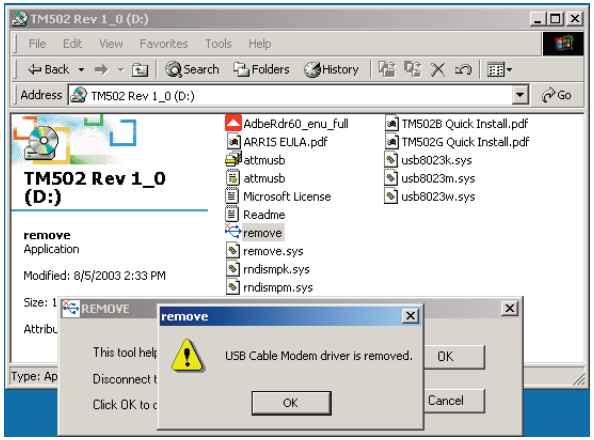


3 Start the Remove utility by double-clicking it in the window.

The Remove utility prompts you to click OK to remove the USB driver, or Cancel to quit.

4 Click the OK button.

The Remove utility displays the following message:



5 Leave the CD in the drive, reconnect the Wideband Cable Modem, and install the USB driver as appropriate for your operating system.

Removing USB Drivers (64-bit Vista)

Follow these steps to uninstall the 64-bit USB driver, if necessary.

1 If you no longer have the USB driver, download the zipped Vista USB driver from the ARRIS website at the following link:

http://www.arrisi.com/support/usb/index.asp

2 If necessary, unzip the files to a directory that can be accessed for the uninstallation.

3 Connect the USB cable between the Touchstone Cable Modem or Wideband Cable Modem and personal computer running Vista.

4 Open the directory created in step 2 (or during the original driver installation, if you kept it).

5 Locate the file remove.exe.

6 Right-click on the remove.exe file, and select Run as administrator from the drop-down menu. Enter the administrator password, if prompted.

7 Follow the instructions as prompted to remove the driver.

Configuring Your Ethernet Connection

If your computer is equipped with a LAN card providing an Ethernet connection, you may have to configure your computer's TCP/IP settings. The steps that follow will guide you through setting your computer's TCP/IP settings to work with the Wideband Cable Modem.

Requirements

Make sure you have the following before attempting to configure your Ethernet connection:

- Computer with:
  - — one of: Windows 98SE, Windows 2000, Windows ME, Windows XP, or Windows Vista
  - — Ethernet interface
- Ethernet cable (supplied)
- IP address, subnet, gateway, and DNS information for installations not using DHCP

How to use this chapter

The following list shows the procedures for modifying the TCP/IP settings on the computer. The procedure is slightly different depending on the operating system that you are using. Please ensure you are using the correct steps for the operating system on your computer. Follow the links below for instructions to configure your ethernet connection on your operating system.

- TCP/IP Configuration for Windows 98SE
- TCP/IP Configuration for Windows 2000
- TCP/IP Configuration for Windows ME
- TCP/IP Configuration for Windows XP
- TCP/IP Configuration for Windows Vista
- TCP/IP Configuration for MacOS X

TCP/IP Configuration for Windows 98SE

Follow these steps to configure the TCP/IP settings on a Windows 98SE operating system.

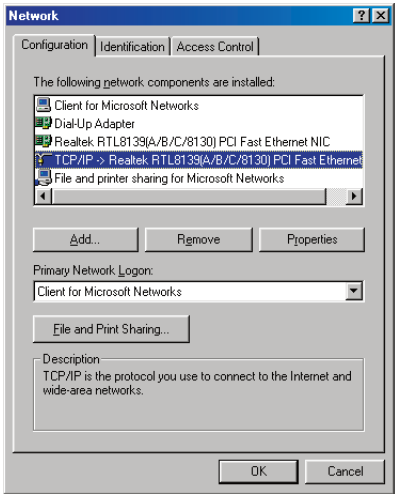
Note: Dialog boxes shown on your computer may differ slightly from those shown in this procedure.

1 From the computer, select Start > Settings > Control Panel.

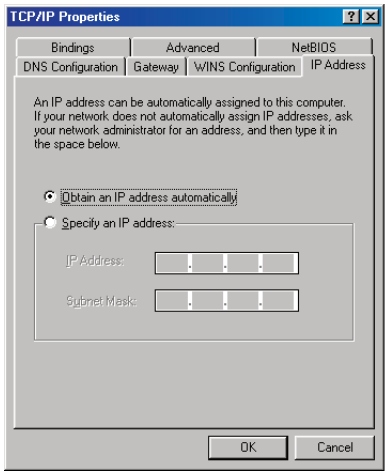
2 Double click on the Network icon in the Control Panel.

3 Click the Configuration tab in the Network window to display the list of Network Adapters.

4 Highlight TCP/IP by clicking on it one time, then click on Properties.



5 Click the IP Address tab, click Obtain an IP address automatically, then click OK.


TCP/IP Properties
Bindings
Advanced
NetBIOS
DNS Configuration
Gateway
WINS Configuration
IP Address
An IP address can be automatically assigned to this computer. If your network does not automatically assign IP addresses, ask your network administrator for an address, and then type it in the space below.
Obtain an IP address automatically
Specify an IP address:
IP Address:
Subnet Mask:
OK
Cancel

6 Click OK to accept the new settings, and OK again to close the Configuration window.

7 You may have to restart your computer in order for your computer to obtain a new IP address from the network.

TCP/IP Configuration for Windows 2000

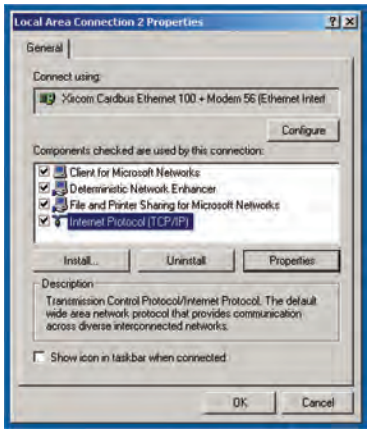
Follow these steps to configure the TCP/IP settings on a Windows 2000 operating system.

Note: Dialog boxes shown on your computer may differ slightly from those shown in this procedure.

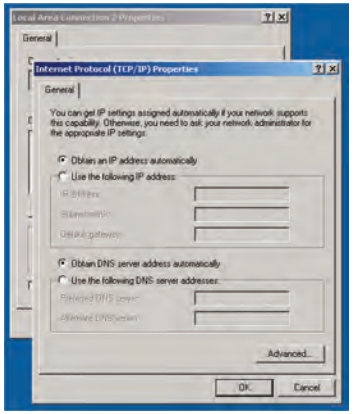
1 From the computer, select Start > Settings > Network and Dial-up Connections > Local Area Connection.

2 In the Local Area Connections Properties window, highlight TCP/IP by clicking on it one time, then click on Properties.

Note: If your computer has more than one Ethernet card, you may have to select the appropriate Ethernet card in the Connect using: area of the Local Area Connection Properties window.



3 Click Obtain an IP address automatically and Obtain DNS server address automatically, then click OK.


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
Obtain DNS server address automatically
Use the following DNS server addresses:
Advanced...
OK
Cancel

4 Click OK to accept the new settings, and OK again to close the Configuration window.

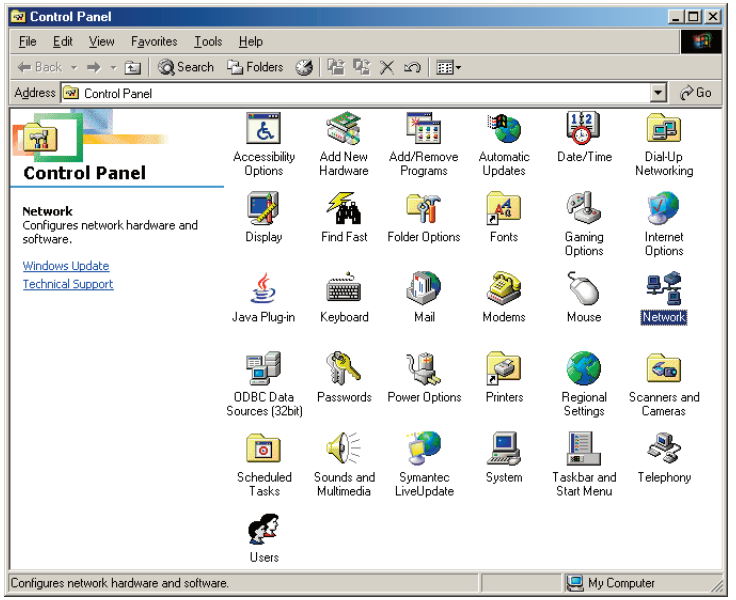
5 You may have to restart your computer in order for your computer to obtain a new IP address from the network.

TCP/IP Configuration for Windows ME

Follow these steps to configure the TCP/IP settings on a Windows ME operating system.

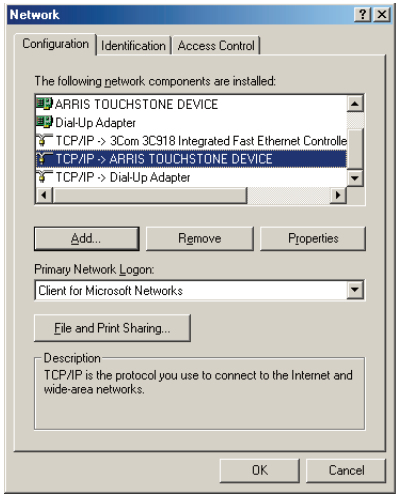
Note: Dialog boxes shown on your computer may differ slightly from those shown in this procedure.

1. From the computer, select Start > Settings > Control Panel.
2. Double click on the Network icon in the Control Panel.

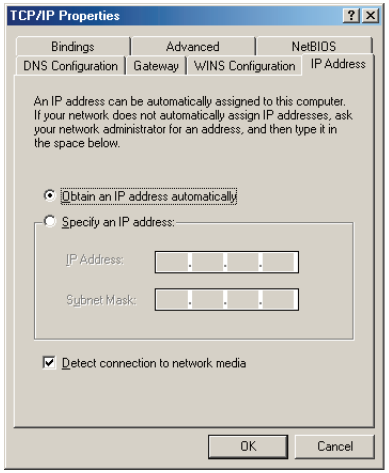


3. Click the Configuration tab in the Network window to display the list of Network Adapters.

4 Highlight TCP/IP by clicking on it one time, then click on Properties.



5 Click the IP Address tab, then click OK.


TCP/IP Properties
Bindings
Advanced
NetBIOS
DNS Configuration
Gateway
WINS Configuration
IP Address
An IP address can be automatically assigned to this computer. If your network does not automatically assign IP addresses, ask your network administrator for an address, and then type it in the space below.
Obtain an IP address automatically
Specify an IP address:
IP Address:
Subnet Mask:
Detect connection to network media
OK
Cancel

6 Click OK to accept the new settings, and OK again to close the Configuration window.

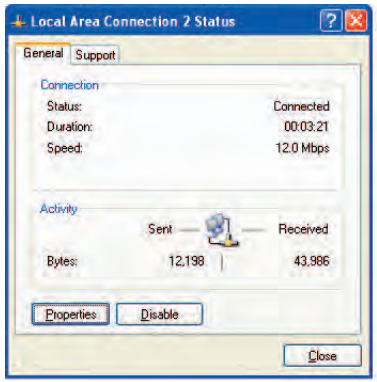
7 You may have to restart your computer in order for your computer to obtain a new IP address from the network.

TCP/IP Configuration for Windows XP

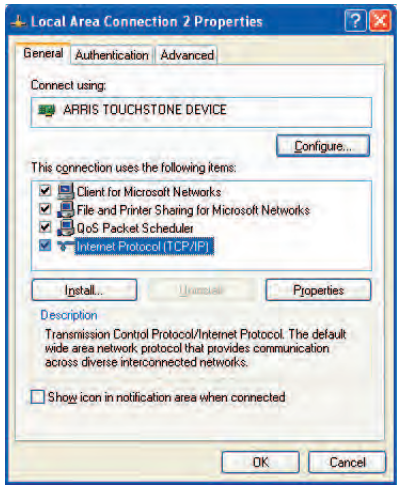
Follow these steps to configure the TCP/IP settings on a Windows XP operating system.

Note: Dialog boxes shown on your computer may differ slightly from those shown in this procedure.

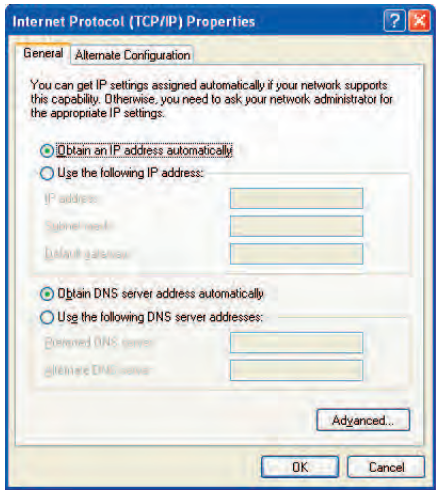
1. From the computer, select Start > Settings > Control Panel and double click on the Network Connections icon in the Control Panel.
2. Click the Configuration tab in the Network window to display the list of Network Adapters.



3 Highlight TCP/IP by clicking on it one time, then click on Properties.



4 Click the IP Address tab, click Obtain an IP address automatically, then click OK.


Internet Protocol (TCP/IP) Properties
General
Alternate Configuration
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
Obtain DNS server address automatically
Use the following DNS server addresses:
Advanced...
OK
Cancel

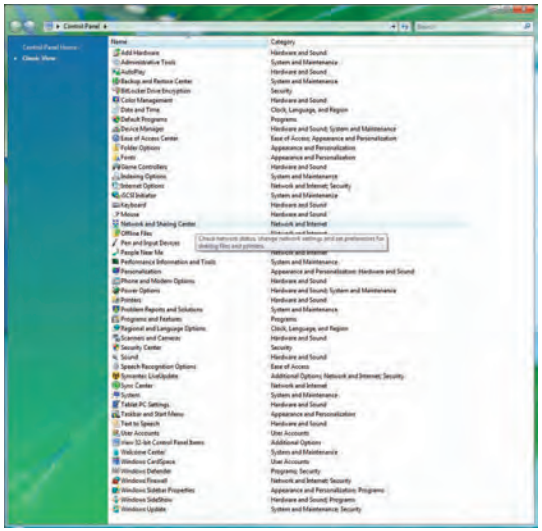
5 Click OK to accept the new settings, and OK again to close the Configuration window.

6 You may have to restart your computer in order for your computer to obtain a new IP address from the network.

TCP/IP Configuration for Windows Vista

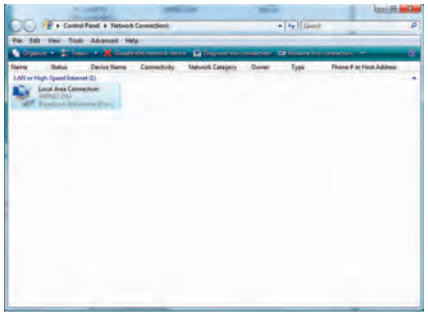
Follow these steps to configure the Ethernet interface for use with Touchstone products.

1 Open the Vista Control Panel.

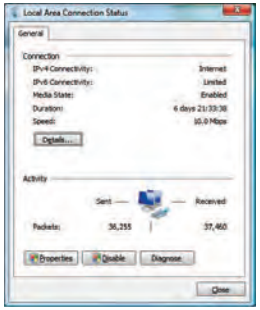


2 Double-click Network and Sharing Center.

3 Click Manage network connections. If prompted for a connection, choose Local Area Connection.



4 Double-click the Local Area Connection to open the Status window:



5 If Windows requests permission to continue, click Continue.

6 Click Properties.

7 Double-click Internet Protocol Version 4 (TCP/IPv4).

Internet Protocol Version 4 (TCP/IPv4) Properties
General
Alternate Configuration
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

8 Select Obtain an IP address automatically and Obtain DNS server address automatically, unless instructed otherwise by your cable provider.

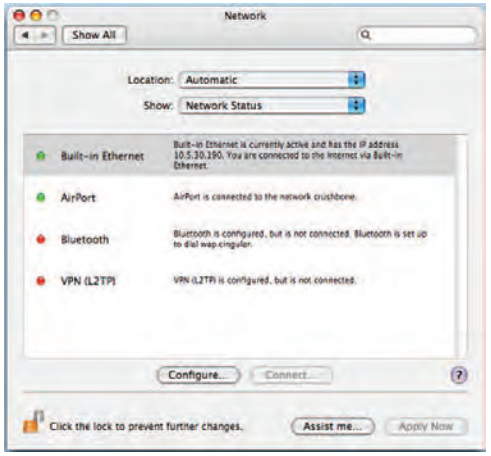
9 Click OK to close the Properties windows.

TCP/IP Configuration for MacOS X

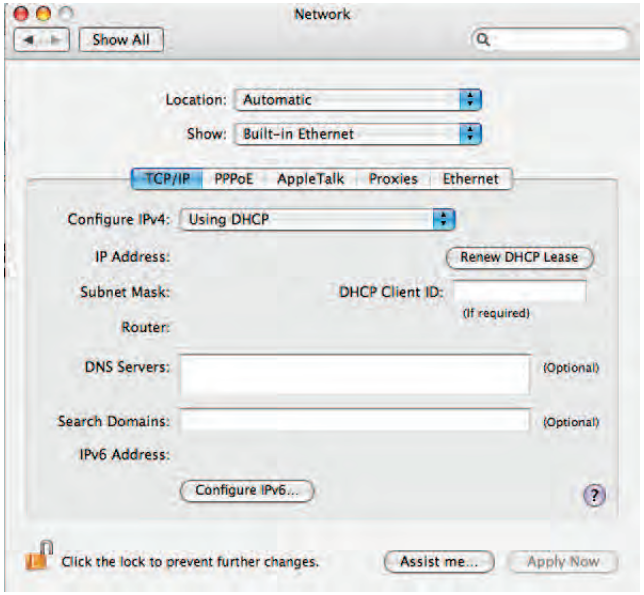
Follow these steps to configure the Ethernet interface for use with Touchstone products.

1 Open System Preferences, either by choosing System Preferences from the Apple menu or by clicking the System Preferences icon in the dock.

2 Click the Network icon.



3 Choose Automatic from the Location drop-down menu, and Built-in Ethernet from the Show menu.



4 Choose the TCP/IP tab, if necessary.

5 Choose Using DHCP from the Configure IPv4 menu.

6 If necessary, click the Renew DHCP Lease button.

7 Close the System Properties application.

Using the Wideband Cable Modem

This chapter describes the controls and features available on the Touchstone Wideband Cable Modem, and covers basic troubleshooting procedures.

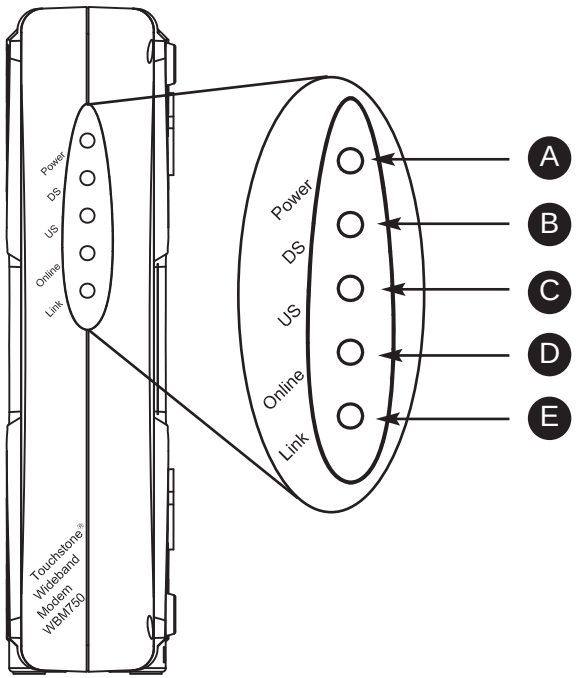
- Setting up Your Computer to Use the Wideband Cable Modem
- Indicator Lights
- Using the Reset Button

Setting up Your Computer to Use the Wideband Cable Modem

Follow the instructions in the information packet supplied by your cable company. Contact your cable company if you need help setting up your computer.

To take full advantage of the WBM750 high speed data connection, you may need to tune your computer's connection parameters. The following programs may be useful:

- Windows: TCP Optimizer, available from speedguide.net
- MacOS X: Broadband Tuner, available from apple.com



Indicator Lights for the WBM750A/B Models

The Wideband Cable Modem has five indicator lights to assist in troubleshooting.

Patterns: Normal Operation

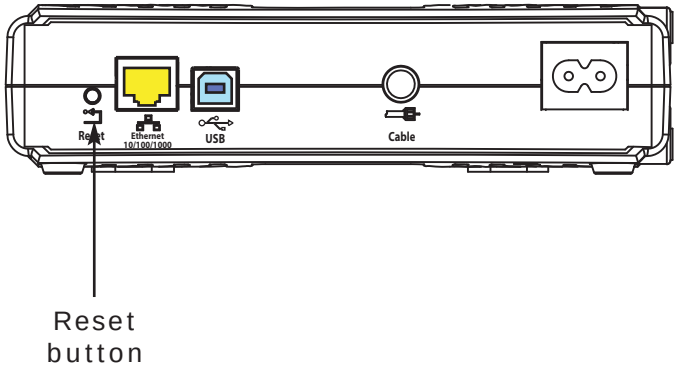
The following table shows light patterns during normal operation.

Mode	Power	DS	US	Online	Link
AC Power	On	On = Connected to the Internet Flash = Not connected to the Internet	On = Connected to the Internet Flash = Not connected to the Internet	On = Internet Available Off = Internet not available	On = Computer Connected Off = Computer not connected Flash = Computer Activity
No AC Power	Off	Off	Off	Off	Off
Firmware Upgrade	On	Flash	Flash	On	(normal operation)

Patterns: Startup Sequence

The following table shows the light patterns during each phase of the startup sequence.

Power	DS	US	Online	Link	Description
Off	Off	Off	Off	Off	No power to Wideband Cable Modem
Flash	Flash	Flash	Flash	Flash	Power-on Self Test
On	Flash	Off	Off	Off	Downstream search
On	On	Flash	Off	Off	Downstream found; upstream search
On	On	On	Flash	Off	Downstream and Upstream found; retrieving setup information from cable operator



Reset button

Using the Reset Button

Use the Reset button, on the back of the Wideband Cable Modem, to reset the modem as if you power cycled the unit. You may need to reset the Wideband Cable Modem if you are having problems connecting to the Internet.

Use a pointed non-metallic object to press this button. The photo to the left shows the location of the Reset button.

The Reset button is recessed to prevent accidental resets.

Troubleshooting

The Wideband Cable Modem is plugged in, but the Power light is off.

Check all power connections. Is the power cord plugged in firmly at both ends?

If you plugged the power cord into a power strip, make sure the strip is switched on.

Avoid using an outlet controlled by a wall switch, if possible.

Check the outlet by plugging in another device (such as a lamp).

Finally, check the fuse or circuit breaker panel.

I'm not getting on the Internet.

It may take over 30 minutes to establish a connection the first time you power up your Wideband Cable Modem, especially when many people are online. Always leave your Wideband Cable Modem plugged in and connected to the cable system.

Check the front panel lights:

- The Power and Online lights should be on.
- The Link light should be either on or blinking.
- The DS and US lights should be on.
- If the Power light blinks for more than 30 minutes, call your cable company for assistance.

Check your cable connections. Connectors should be finger-tight. The coax cable should not be pinched, kinked, or bent sharply—any of these can cause a break or short in the cable (you may have to replace the cable). If you have one or more splitters between the Wideband Cable Modem and CATV outlet, remove the splitters and connect the Wideband Cable Modem directly to the outlet.

Proceed to the Ethernet or USB solutions (next page) if necessary.

I'm not getting on the Internet. (Ethernet)

If you are using a hub, is the hub turned on? If you have connected the PC or Wideband Cable Modem to the crossover port on a hub, toggle the cross-over switch.

Are you using the right type of Ethernet cable? Use the supplied cable for direct connection to a computer; use a cross-over cable for connection to a hub or home router.

Press the Reset button on the back of the Wideband Cable Modem.

I'm not getting on the Internet. (USB)

Did you load the USB drivers?

If you are using a powered USB hub, is the hub turned on?

Check the USB cable connections. Disconnect and reconnect the USB cable.

Restart the computer.

Press the Reset button on the back of the Wideband Cable Modem.

I can get on the Internet, but everything is slow.

If the Web site you are visiting is very popular, that site may be having trouble servicing all the requests. If other sites download quickly, wait for a few minutes and try again. Usage during peak hours may also affect the connection speed.

If your Wideband Cable Modem is connected to a LAN (Local Area Network), either directly or through a firewall, other communications on the LAN may slow down your connection. Some broadband routers or wireless hubs may not support the high speeds possible with the Wideband Cable Modem. Connecting the Wideband Cable Modem to 10Base-T devices may limit connection speeds as well.

To test your network speed, try an online test such as http://reviews.cnet.com/Bandwidth_meter/7004-7254_7-0.html

I have two computers connected to the Wideband Cable Modem, but only one can get on the Internet.

Check your cable company's terms of service: they may allow only one computer to connect directly to the Wideband Cable Modem.

Troubleshooting USB Problems

Follow these steps if the computer does not auto-detect the Wideband Cable Modem using a USB connection.

Before you start, make sure that:

- You have properly installed and configured the Wideband Cable Modem as shown in Installing and Connecting Your Wideband Cable Modem.
- You have installed the USB drivers as shown in Installing USB Drivers on Your PC.
- The cable company has set up your account. Call your cable company if you're not sure.

Instructions

1. Be sure that your computer is running either Windows 2000, Windows XP, or Windows Vista (Windows 95, Windows 98, and Windows NT are not supported).
2. Be sure the Wideband Cable Modem has power. The Power light should be on.
3. Push the Reset button on the back panel of the Wideband Cable Modem, using a pen tip or other sharp non-metallic object.
4. Disconnect the USB cable from the computer and reconnect it.
5. Restart the computer.
6. Do the following to uninstall and the reinstall your USB drivers:
   a. Disconnect the USB cable to the Wideband Cable Modem.
   b. Insert the Wideband Cable Modem CD-ROM into your computer.

c. Start the Remove utility on your CD-ROM. Follow the on-screen instructions carefully.

d. Reconnect the USB cable.

e. Re-install the USB driver as shown in Installing USB Drivers on Your PC.

7 Replace the USB cable.

8 Call your cable company for help.

Glossary

The following is a list of common cable and networking terms.

A/B Cable

A USB cable that has a narrow rectangular connector on one end (A) and a notched square connector (B) on the other end.

Category 5 (Cat5)

A high-quality type of cable, used for Fast Ethernet (100BaseT) connections. When purchasing Ethernet cables, always look for Category 5 cable.

Coaxial cable (coax)

A thin wire, used to connect your television and Wideband Cable Modem to the cable TV system. You can buy coax from any electronics retailer and many discount stores.

CPE

Customer Premise Equipment. This is the equipment that is plugged in to the Wideband Cable Modem; typically a computer, hub, or router.

Cross-over

An Ethernet cable used to connect two hubs (or a hub and a cable modem) together. Also, some Ethernet hubs may have built-in cross-over on one or more ports (which eliminates the need for a cross-over cable).

DHCP

Dynamic Host Configuration Protocol. An IP protocol used to provide an IP address and location of services (such as DNS and TFTP) needed by a device connecting to the network. DHCP allows the cable company to configure your computer's networking software for you.

DNS

Domain Name Service (Server). An IP service that associates a domain name (such as www.example.com) with an IP address.

Downstream

In an HFC network, the direction from the head-end to the subscriber. Some older cable documentation may refer to this as the forward path.

DOCSIS

Data Over Cable System Interface Specification. The interoperability standards used for data communications equipment on an HFC network.

EMTA

Embedded Multimedia Terminal Adapter. An MTA device that is integrated with a cable modem.

Ethernet

A standard method of connecting two or more computers into a Local Area Network (LAN).

Euro-DOCSIS

The European version of DOCSIS.

Event

An informational message used for monitoring network status.

F-connector

The type of connector used on coax cable. There are two common types of F-connector, slip-on and screw-on. Use coax with screw-on connectors for connecting your Wideband Cable Modem.

Gateway

The device, usually a router, that connects devices on a given IP subnet to other IP subnets.

Headend

The “central office” in an HFC network. The headend houses both video and data equipment. In larger cable networks, a “master” headend often feeds several “remote” headends to provide distributed services.

HTTP

HyperText Transfer Protocol.

Hub

A box with several Ethernet or USB connectors. Ethernet hubs provide a common point of contact for all connected devices; USB hubs allow you to add peripherals without installing a USB card in your computer.

IP address

A number assigned to your computer by your cable company, used to identify your computer to other systems on the Internet.

LAN

Local Area Network. A network that allows computers in a single location (such as a building) to communicate with one another.

LED

Light Emitting Diode. A semi-conductor diode that emits light when current is passed through it.

MAC address

A number that uniquely identifies any device connected to a network. Your cable company uses your Wideband Cable Modem's MAC address to authorize access to the Internet. The MAC address is printed on a label on the bottom of your Wideband Cable Modem.

Protocol

A set of rules and formats that determines the communication behavior of network entities at a given layer.

Proxy

A device or program that stands in between a server (for example, a web site) and a client (your browser), providing a way to relieve some of the burden from the server. For example, your cable company may have a web proxy that keeps copies of popular web pages; the proxy can send you those pages instead of fetching them directly from the web site, resulting in faster page loading and less network congestion.

RF

Abbreviation for Radio Frequency. Some literature refers to coax as "RF cable" and the connectors as "RF connectors."

RJ-11

A standard 4-pin modular connector, commonly used in North America for connecting telephones.

RJ-45

A standard 6-pin modular connector, commonly used on Ethernet cable. An RJ-45 connector looks like a wide RJ-11 (telephone) connector.

Splitter

A small box with three cable connectors: one input and two outputs. You may need a splitter if you have a TV already connected to the cable outlet that you want to use for your Wideband Cable Modem. You can buy a splitter from any electronics retailer and most discount stores.

Switched outlet

A power outlet that may be turned on and off using a wall switch. Usually intended for lamps. Avoid plugging your computer or Wideband Cable Modem into a switched outlet to avoid disruptions.

TCP/IP

Transmission Control Protocol/Internet Protocol. The protocols used to facilitate communications across one or more connected networks.

TDMA

Time Division Multiple Access. A method used by DOCSIS-compliant cable modems for sending upstream data with minimal interference.

Upstream

The path from a subscriber device to the headend. Some older cable documentation may refer to this as the return path or reverse path.

USB

(Universal Serial Bus) An interface used for connecting a variety of accessories, such as keyboards, mice, printers, and communications devices (such as cable modems) to a single computer.

Touchstone®

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